

VIRTUAL UNIVERSITY OF PAKISTAN, LAHORE
(DEPARTMENT OF COMPUTER SCIENCE)

Synopsis for Master of Science in Computer Science (MSCS)

I. Name of Student:

II. VUID:

III. Title of Synopsis:

IV. Thesis Research

Starting Date:

Duration:

V. Supervisory Committee:

1. Supervisor:

(a) Name:

(b) Designation:

(c) Official Address:

Abstract

Here will be the your abstract. It will be comprehensive as per standards used in general research thesis and articles. Please use the same font and styles as this document is.

Need of the Project:

You have to provide the complete motivation of your choice to work on this topic. Also a brief defence of your topic that this work has not already been done. You may include the references in this part.

Review of Literature:

In this portion you have to provide some literature survey that you have done to carry out your research work. The literature will be arranged in a way starting with the latest research and then moving to the older one. For example the first will be 2013 then 2012, 2011 and so on.

- Single Author will be written only by second name
- In case of 2 Authors, second name of both will be used here.
- In case of more than 2 authors, only second name of first author will be used with *et al*

Some sample review is given below:

PLEASE WRITE THE REVIEWS IN A WAY THAT LATEST RESEARCH IS GIVEN FIRST. 2013, 2012 AND SO ON

FOR SINGLE AUTHOR:

ONLY SECOND NAME WILL BE USED. For example Muhammad Aslam will be written as Aslam (2014) or (Aslam, 2014) as per requirement in the sentence

FOR TWO AUTHOR:

Muhamamd Aslam and Abdul Basit

It will be written as

Aslam and Basit (2014) or (Aslam and Basit, 2014)

FOR MORE THAN TWO AUTHOR:

Muhammad Aslam, Abdul Basit, Shah Muhammad

Will be written as:

Aslam *et al.* (2014) OR (Aslam *et al.*, 2014)

The authors in (Porras and Gueheneuc, 2010) designed and conducted an empirical study to collect the data on the performance of the developers on basic tasks related to design pattern comprehension to evaluate the impact of the above three proposed presentations and to compare them with the UML Collaboration notation. They concluded that none of the existing notations fits all possible tasks. Therefore it is important to carefully investigate all the notations. Their future work includes using the results obtained in their work to propose a new representation.

Dong *et al.* (2007a) presented a UML profile for design patterns, which extends the UML with new stereotypes, tagged values, and constraints to explicitly visualize pattern-related information. The UML extension is defined in the UML meta-model. This UML profile represents the role each modelling element plays in a design pattern. In addition, authors provided a tool that can be used to dynamically visualize pattern related information (Dong *et al.*, 2005). Authors used tagged values to hold information about the roles that a class, a method, or an attribute plays in a design pattern and also deals with multiple instances of design patterns. This representation has the advantage of expressing clearly pattern-related information. However, the text overload could increase considerably the size of classes as well as make the diagrams harder to read.

With the goal of removing the cluttering dashed lines in UML, Vlissides (1998) proposed representation Gamma, where all pattern-related information is contained in shaded boxes which are placed close to the classes participating in patterns. This representation is highly readable because it puts the pattern-related information in another plan with the diagram. However, this representation could increase significantly the size of the original diagram. Also, the combination of gray boxes with white typography could lead to reading problems on printed media.

Schauer and Keller (1998) implemented a prototype to ease program comprehension based on design pattern recognition and visualization techniques. To visualize design patterns, the authors proposed pattern enhanced class diagrams that use different coloured borders to identify pattern participation. This approach cannot identify the role a class plays in a given design pattern. It's really difficult to identify all the design patterns in which a class participate.

Materials and Methods:

In this part you have to give the details of your methodology adopted to carry out this research. Also the tools used for the analysis and validation of your work are mentioned. You may also write in a continuous paragraph or in the form of points.

This sample below will be followed for the literature citation. Please observe the citation is in sorted alphabetical order i-e starting with A, Then B, C and so on...

Literature Cited:

- [01] Bayley, I. and H. Zhu. 2008. On the Composition of Design Patterns. In Proc. of 8th IEEE Int. Conf. on Quality Software (QSIC'08). (Washington, DC, USA). pp. 27-36. ISBN: 978-0-7695-3312-4.
- [02] Dong, J., 2003. Representing the Applications and Compositions of Design Patterns in UML. In Proc. of the ACM Symp. on Applied Computing (SAC'03). (NY, USA). pp. 1092-1098. ISBN: 1-58113-624-2.
- [03] Gamma, E., R. Helm, R. Johnson and J. Vlissides. 1994. Elements of Reusable Object-Oriented Software. Published by Addison Wesley Professional. ISBN: 978-0201633610.
- [04] Porras, G. C. and Y. Gueheneuc. 2010. An Empirical Study on the Efficiency of Different Design Patterns Representations in UML Class Diagrams. Empirical Software Engineering. (Hingham, USA). 15(5): 493-522.

- [05] Schauer, R. and R. K. Keller. 1998. Pattern Visualization for Software Comprehension. In Proc. of 6th IEEE Int. Workshop on Program Comprehension (IWPC'98). (Ischia, Italy). pp. 4–12. ISSN: 1092-8138.
- [06] Vlissides, J. 1998. Pattern Hatching Notation, Notation, Notation. C++ Report. Published by SIGS Publications Group. (New York, USA). 10(4): 48–51.
- [07] Yacoub, S. M. and H. H. Ammar. 2003. Pattern-Oriented Analysis and Design: Composing Patterns to Design Software Systems. Addison Wesley Professional, 1st Ed. ISBN: 0201776405.